CITY OF WORCESTER, MASSACHUSETTS
Department of Health & Human Services
Division of Public Health

Public Health
Prevent. Promote. Protect.

Matilde Castiel, MD
Health & Human Services
Commissioner

Karyn E. Clark
Public Health
Director

Date: October 15, 2021
To: Board of Health
From: Karyn E. Clark, Director of Public Health
Re: Board of Health/ WebEx Meeting Minutes September 27, 2020

Welcome & Introductions
Meeting was called to order at 6:38 PM
Members present: Jerry Gurwitz, MD, Vice Chairman, Frances Anthes, Chareese Allen and David Fort
Staff: Karyn Clark, Director of Public Health, Colleen Bolen, Deputy Director of Public Health, Matilde "Mattie" Castiel, MD, Commissioner of Health & Human Services, Michael Hirsh, MD, Medical Director
Public Participation: Michelle O'Rourke, RN, Richard Ellison, MD, members of the public

Approval of minutes from August 2, 2021
David Fort made a motion to approve, seconded by Chareese Allen. Approved.

Emergency regulations to be Ratified

- Requiring Face Coverings in All Public, Private, Parochial, and Charter Schools in the City of Worcester
- Requiring Employers to Report Positive COVID-19 Cases in the Workplace in the City of Worcester (revised)
- Requiring Face Coverings in All Indoor Private Common Spaces in the Workplace and Indoor Private Spaces Open to the Public (revised)

Discussion:

- Dr. Castiel presented a slide deck (attached) on the importance of masking based on science and data.
- Dr. Richard Ellison, Infectious Disease, UMass Memorial discussed the importance of protecting yourself and protecting others through wearing a mask.
- Michelle O'Rourke, RN, UMass Memorial discussed masking, that it is proven to work, provided data on the high number of ICU beds and acute care beds and that wearing masks protects the workers in healthcare.

- Several participants from the webex expressed concerns about small businesses and asked if the BOH had taken this into consideration.
- Phillip Feinzeig. submitted testimony that supports masks but suggests the order be more specific and list fines.
- Kristin Falvey shared an email sent to the Worcester School Committee about masking concerns and also shared a mask and oral health abstract for consideration.

Chareese Allen made a motion to ratify the three emergency regulations.
Discussion among the Board of Health Members:
David Fort empathizes with small businesses and appreciates everyone who called in this evening. Members of the Board have been in public health for many years. Rescinding of the mask mandate in May was a mistake. Understands the frustration, he is also wearing a mask 8 hours a day.
Fran Anthes is focusing on face covering for our young people and those who are immunocompromised and those who cannot get the vaccine. Feels this is for the greater good.
Jerry Gurwitz, MD thanked Dr. Castiel and the Division of Public Health, is in support of all three emergency regulations.
No further discussion, Fran Anthes seconded the motion. Approved.

COVID-19 updates

- Data & Trends – Dr. Hirsh provided updates on the daily counts and the impact of the Delta Variant. West Boylston Board of Health has adopted a mask mandate.
- Schools - Jerry Gurwitz made a motion to endorse the Worcester Public School Committee's vote to require school staff to be vaccinated. Chareese Allen seconded the motion. Approved.
- Vaccinations – we continue to encourage all eligible individuals to get vaccinated. Mobile equity clinics continue to be held throughout the City. Promoting booster shots for eligible individuals.

Goods for Guns
20 years of the program, recent celebration at UMass Memorial with the City Manager, District Attorney Joseph Early, other partners and medical students. Used the guns collected to make garden tools. 40 year anniversary since Dr. John Wood was murdered, Dr. Hirsh's best friend and colleague, who was shot outside of a hospital.

Next Meeting / Topics
David Fort said there is a desire from the community to talk about a citizens review board to minimize fear of police.
COVID-19 updates
Next meeting will be Monday, October 18, 2021 at 6:30 PM via webex.

Adjourn

The City of WORCESTER

BOH: Covid-19 Vaccine Update and Mask Research

September 27, 2021

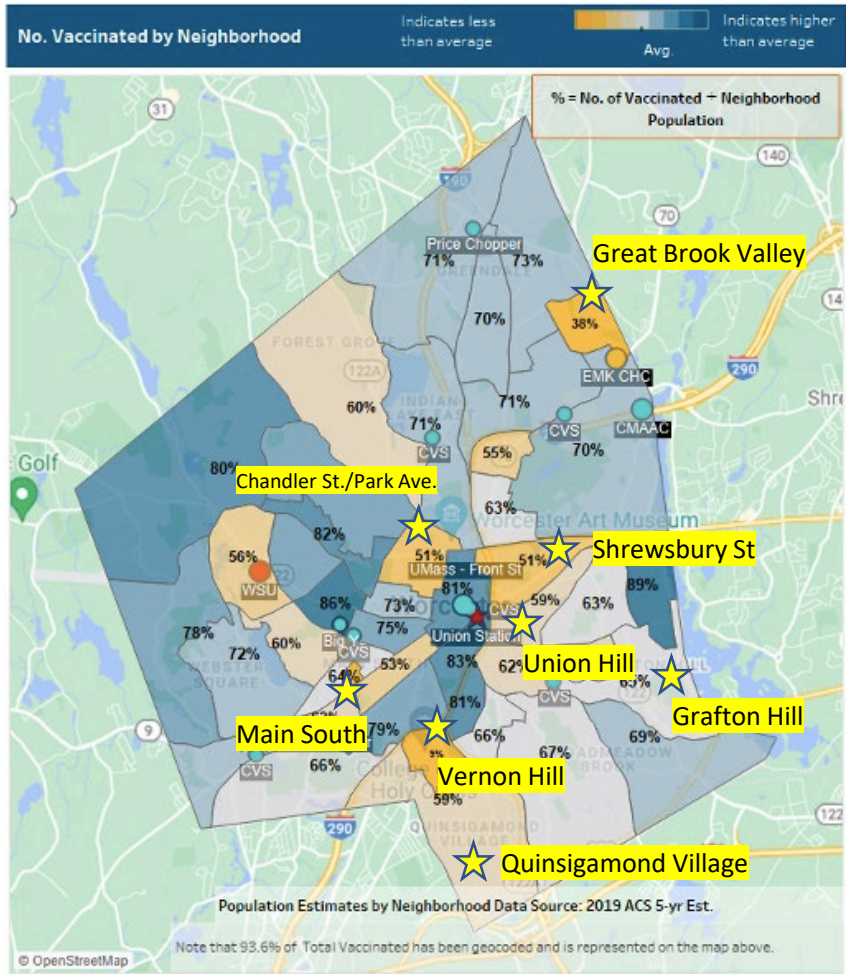
Department of Health and Human Services

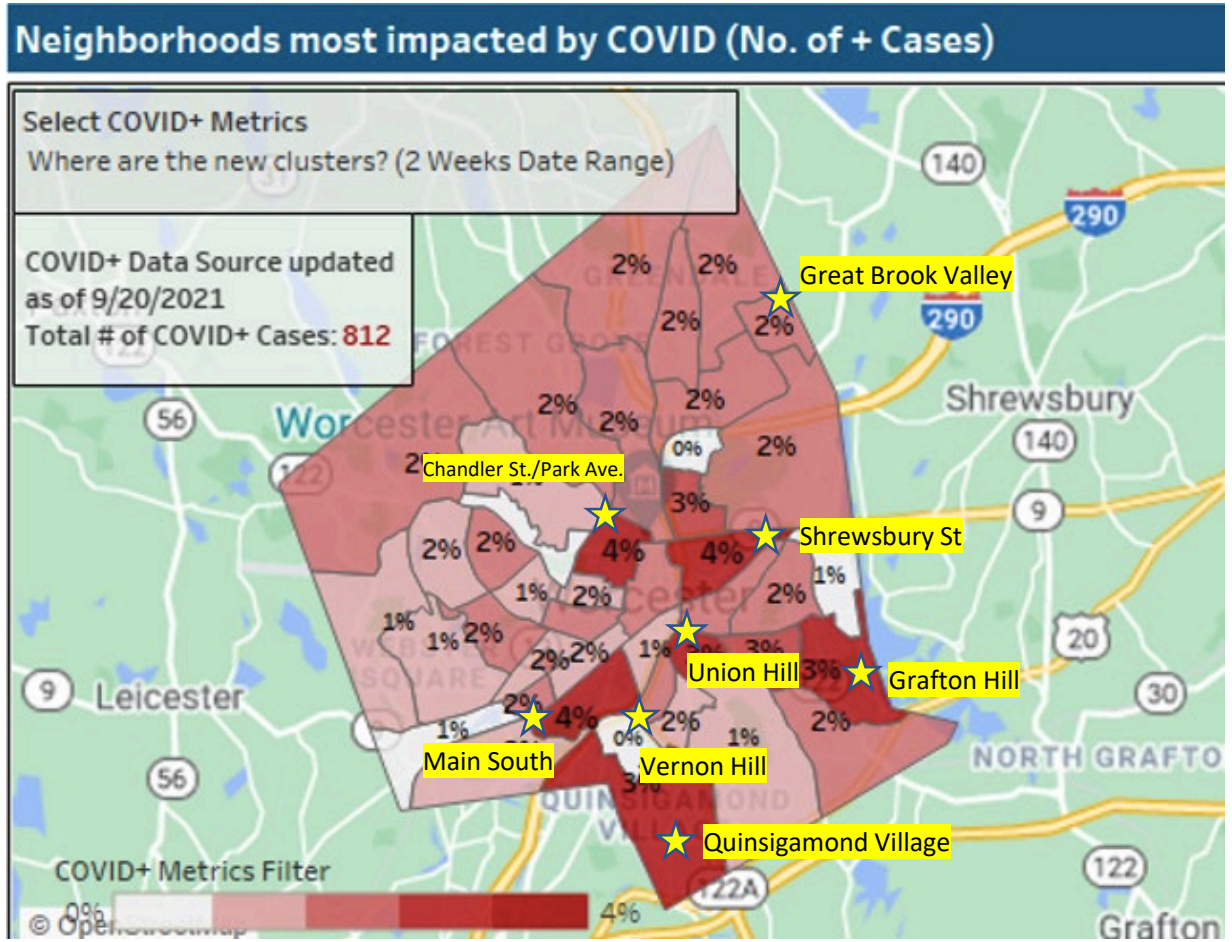
Commissioner Dr. Matilde Castiel

Domenica Perrone, Project Manager

Data Source: Massachusetts Department of Public Health: Covid-19 Vaccine Equity Initiative. 9/21/21. Mass.gov. “COVID-19 Vaccine Equity Initiative: Community-specific vaccination data.” https://www.mass.gov/info-details/covid-19-vaccine-equity-initiative-community-specific-vaccination-data#covid-19-vaccine-equity-initiative-

Areas in Worcester that are LEAST vaccinated have the HIGHEST Covid-19 cases (9/20/21)



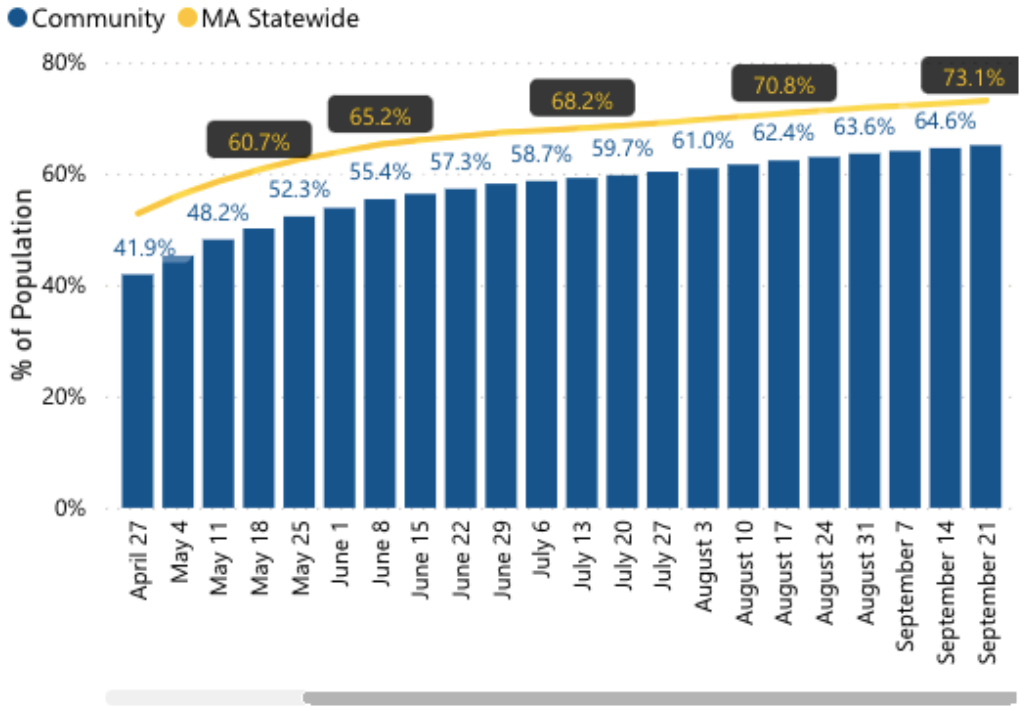


MDPH State Data Dashboard for Total Population: Worcester vs. State

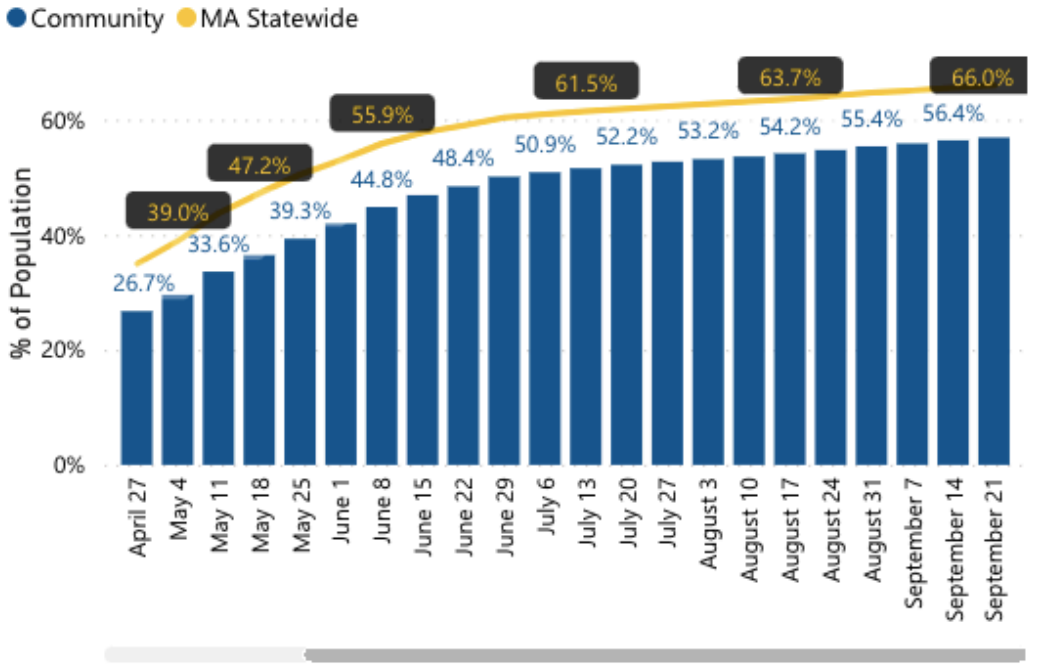
In Worcester, 65.1% Received First Dose and 56.9% Fully Vaccinated

State of MA, 73.1% Received First Dose and 66% Fully Vaccinated

Percent of population received First Dose, Worcester



Percent of population Fully Vaccinated, Worcester



An accessibility review of the dashboard conducted by the Executive Office of Technology Services and Security (EOTTS) is currently ongoing and DPH is implementing the required accessibility enhancements as they are identified.

Data current as of 9/21/2021

Worcester vs. State: % Total Population Vaccinated by at LEAST one dose

	Worcester	Massachusetts
Asian	69.1%	71.7%
Black	50.2%	59.7%
Hispanic	49.6%	56.8%
White	66.5%	68.4%

Worcester vs. State: % Total Population **FULLY** Vaccinated

	Worcester	Massachusetts
Asian	60.7%	65.6%
Black	42.5%	52%
Hispanic	41.2%	49.3%
White	60.8%	63%

Worcester vs. State: % Total Population Vaccinated by at LEAST one dose

	Worcester	Massachusetts
12-15 yo	59.1%	71.7%
16-19 yo	52.8%	71.4%
20-29 yo	56.8%	72.6%
30-49 yo	78.4%	83.9%
50-64 yo	91.2%	89.3%
65-74 yo	100%	95.8%
75+ yo	94.9%	93.5%

Worcester vs. State: % Total Population **FULLY** Vaccinated

	Worcester	Massachusetts
12-15 yo	45.1%	61.2%
16-19 yo	43.4%	62.3%
20-29 yo	48.6%	63.8%
30-49 yo	68.2%	75.9%
50-64 yo	81.6%	82.3%
65-74 yo	91.4%	88.3%
75+ yo	86.2%	84.6%

MDPH Worcester Data For Eligible Population by Race/ Ethnicity

	Eligible Pop.	Dose 1 of Eligible Pop.	Fully Vaccinated of Eligible Pop.
Total Pop.	86%	76%	66%
Asian	88%	78%	69%
Black	80%	63%	53%
Hispanic	78%	63%	52%
White	92%	73%	66%

How does Covid-19 spread?

According to 2021 article published by the Journal of American Medical Association by Dr. John T. Brooks from the Center for Disease Control and Prevention:

COVID-19 spreads primarily through respiratory droplets exhaled when infected people breathe, talk, cough, sneeze, or sing.

Exposure is greater the closer a person is to the source of exhalations.

Larger droplets fall out of the air rapidly, but small droplets and the dried particles formed from them can remain suspended in the air.

In circumstances with poor ventilation, typically indoor enclosed spaces where an infected person is present for an extended period, the concentrations of these small droplets and particles can build sufficiently to transmit infection.

Brooks JT, Butler JC. Effectiveness of Mask Wearing to Control Community Spread of SARS-CoV-2. *JAMA.* 2021;325(10):998–999. doi:10.1001/jama.2021.1505

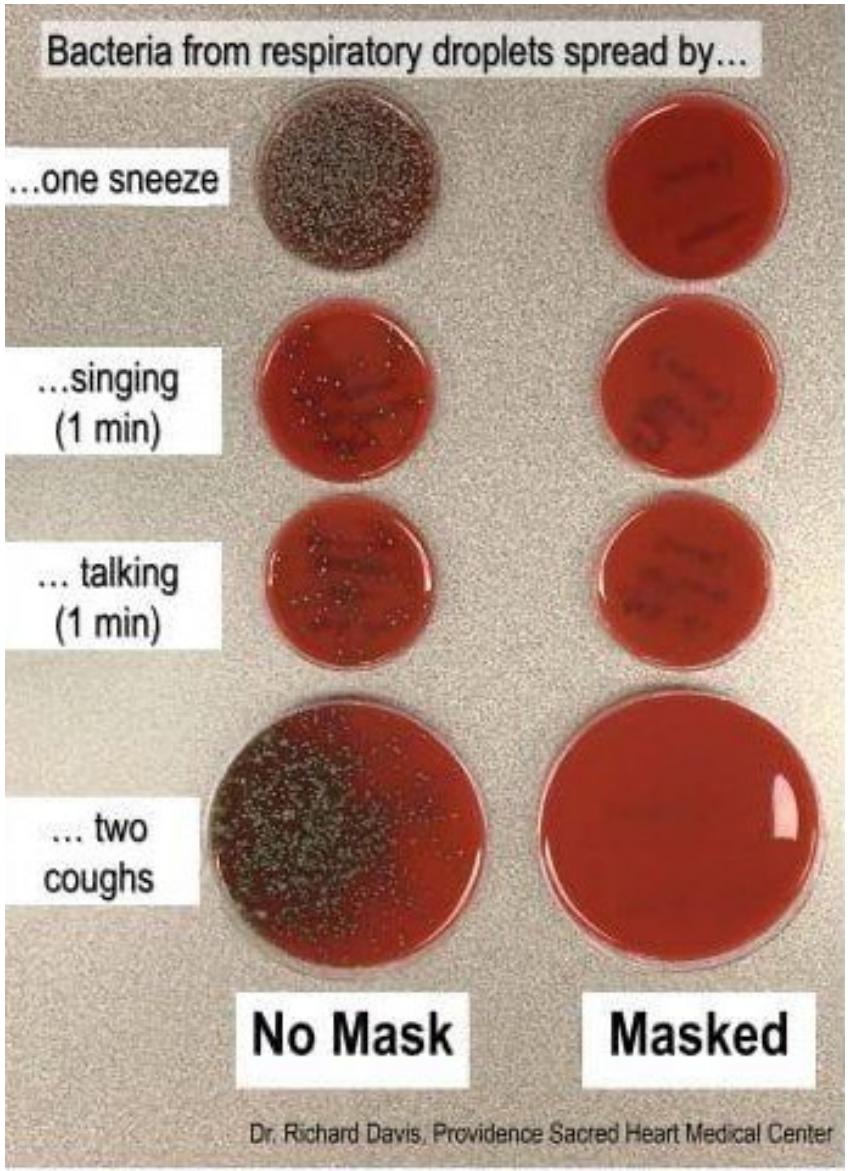
Community mask wearing **substantially reduces transmission** of Coronavirus in 2 ways.

Masks prevent infected persons from exposing others to Covid-19 by blocking exhalation of virus-containing droplets into the air.

This aspect of mask wearing is especially important because it is estimated that at least 50% or more of transmissions are from persons who never develop symptoms or those who are in the pre-symptomatic phase of COVID-19 illness.

Masks protect uninfected wearers.

Masks form a barrier to large respiratory droplets that could land on exposed mucous membranes of the eye, nose, and mouth. Masks can also partially filter out small droplets and particles from inhaled air.



Brooks JT, Butler JC. Effectiveness of Mask Wearing to Control Community Spread of SARS-CoV-2. *JAMA.* 2021;325(10):998–999. doi:10.1001/jama.2021.1505

Center for Disease Control and Prevention: Morbidity and Mortality Weekly Report

Center for Disease Control and Prevention: Morbidity and Mortality Weekly Report

BMJ Global Health

CDC Emerging Infectious Disease Journal

Center for Disease Control and Prevention: Morbidity and Mortality Weekly Report

The Lancet

Journal of American Medical Association

IZA Institute of Labor Economics

Center for Disease Control and Prevention: Morbidity and Mortality Weekly Report

Health Affairs

National Bureau of Economic Research

Table. Studies of the Effect of Mask Wearing on SARS-CoV-2 Infection Risk[a]

Source	Location	Population studied	Intervention	Outcome
Hendrix et al	Hair salon in Springfield, Missouri	139 Patrons at a salon with 2 infected and symptomatic stylists	Universal mask wearing in salon (by local ordinance and company policy)	No COVID-19 infections among 67 patrons who were available for follow-up
Payne et al	USS Theodore Roosevelt, Guam	382 US Navy service members	Self-reported mask wearing	Mask wearing reduced risk of infection by 70% (unadjusted odds ratio, 0.30 [95% CI, 0.17-0.52])
Wang Y et al	Households in Beijing, China	124 Households of diagnosed cases comprising 335 people	Self-reported mask wearing by index cases or ≥1 household member prior to index case's diagnosis	Mask wearing reduced risk of secondary infection by 79% (adjusted odds ratio, 0.21 [95% CI, 0.06-0.79])
Doung-ngern et al	Bangkok, Thailand	839 Close contacts of 211 index cases	Self-reported mask wearing by contact at time of high-risk exposure to case	Always having used a mask reduced infection risk by 77% (adjusted odds ratio, 0.23 [95% CI, 0.09-0.60])
Gallaway et al	Arizona	State population	Mandatory mask wearing in public	Temporal association between institution of mask wearing policy and subsequent decline in new diagnoses
Rader et al	US	374 021 Persons who completed web-based surveys	Self-reported mask wearing in grocery stores and in the homes of family or friends	A 10% increase in mask wearing tripled the likelihood of stopping community transmission (adjusted odds ratio, 3.53 [95% CI, 2.03-6.43])
Wang X et al	Boston, Massachusetts	9850 Health care workers (HCWs)	Universal masking of HCWs and patients in the Mass General Brigham health care system	Estimated weekly decline in new diagnoses among HCWs of 3.4% after full implementation of the mask wearing policy
Mitze et al	Jena (Thuringia), Germany	City population aged ≥15 y	Mandatory mask wearing in public spaces (eg, public transport, shops)	Estimated daily decline in new diagnoses of 1.32% after implementation of the mask mandate
Van Dyke et al	Kansas	State population	Mandatory mask wearing in public spaces	Estimated case rate per 100 000 persons decreased by 0.08 in counties with mask mandates but increased by 0.11 in those without
Lyu and Wehby	15 US states and Washington, DC	State populations	Mandatory mask wearing in public	Estimated overall initial daily decline in new diagnoses of 0.9% grew to 2.0% at 21 days following mandates
Karaivanov et al	Canada	Country population	Mandatory mask wearing indoors	Estimated weekly 25%-40% decline in new diagnoses following mask mandates

[a] See the Supplement for the complete table.

Brooks JT, Butler JC. Effectiveness of Mask Wearing to Control Community Spread of SARS-CoV-2. *JAMA.* 2021;325(10):998–999. doi:10.1001/jama.2021.1505

According to 2021 CDC Report

- Upwards of 80% blockage has been achieved in human experiments that have measured blocking of all respiratory droplets.

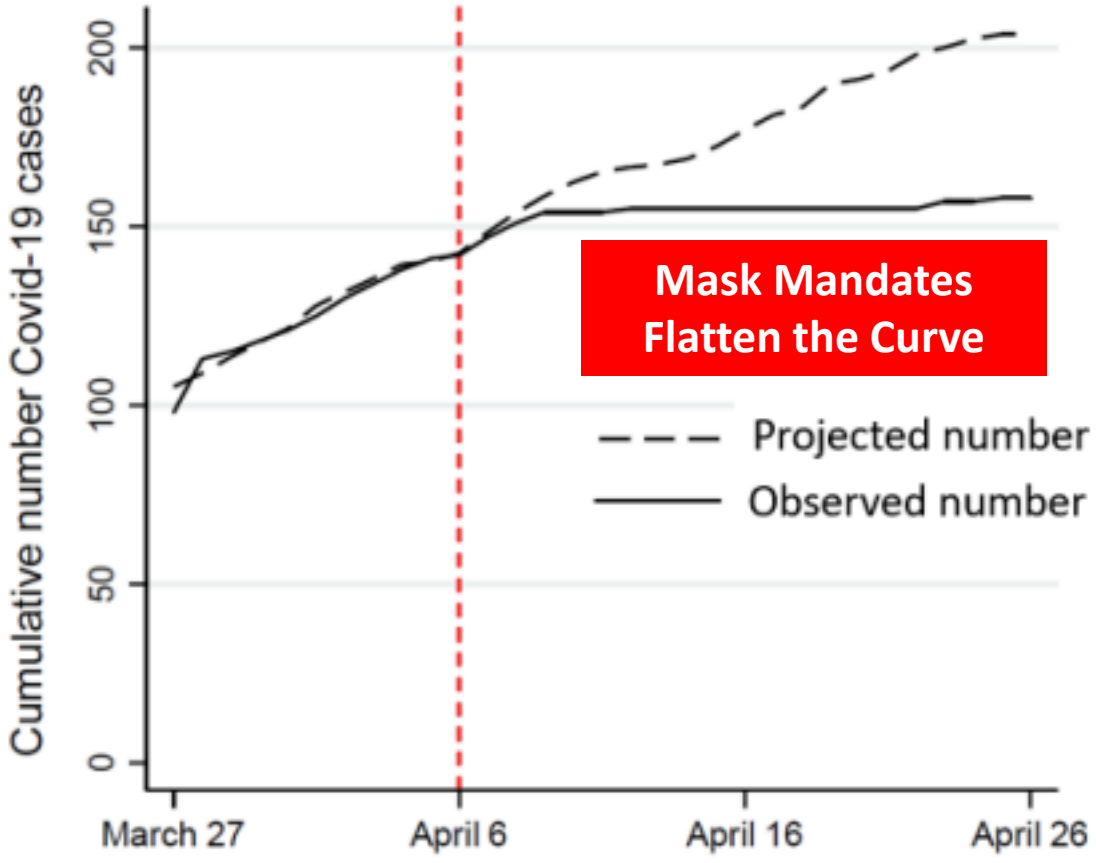
National Center for Immunization and Respiratory Diseases (NCIRD), Division of Viral Diseases. 2021. Science Brief: Community Use of Cloth Masks to Control the Spread of SARS-CoV-2. Center for Disease Control and Prevention. https://www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/masking-science-sars-cov2.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fmore%2Fmasking-science-sars-cov2.html#print

At least ten studies have confirmed the benefit of universal masking in community level analyses:

- Each analysis demonstrated that, following directives from organizational and political leadership for universal masking, **new infections fell significantly**.
- Two of these studies and an additional analysis of data from 200 countries that included the U.S. also demonstrated **reductions in mortality**.
- Another 10-site study showed **reductions in hospitalization** growth rates following mask mandate implementation.
- A separate series of cross-sectional surveys in the U.S. suggested that a 10% increase in self-reported mask wearing **tripled** the likelihood of stopping community transmission.
- An economic analysis using U.S. data found that, given these effects, increasing universal masking by 15% could prevent the need for lockdowns and reduce associated losses of up to **$1 trillion or about 5% of gross domestic product**.

National Center for Immunization and Respiratory Diseases (NCIRD), Division of Viral Diseases. 2021. Science Brief: Community Use of Cloth Masks to Control the Spread of SARS-CoV-2. Center for Disease Control and Prevention. https://www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/masking-science-sars-cov2.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fmore%2Fmasking-science-sars-cov2.html#print

Jurisdictional Declines in New Diagnoses Associated With Organizational/Political Leadership Directives for Universal Masking



- Political leaders mandated universal community masking in the city of Jena (Germany) on April 6, 2020
- New diagnoses leveled off starting about 10 days later*
- Cumulative decline in number of new diagnoses of about 25% within 20 days
  - >50% for persons aged ≥ 60 years
- Other interventions had already been introduced (e.g., social distancing, hand hygiene)

* Median incubation period is 4-6 days

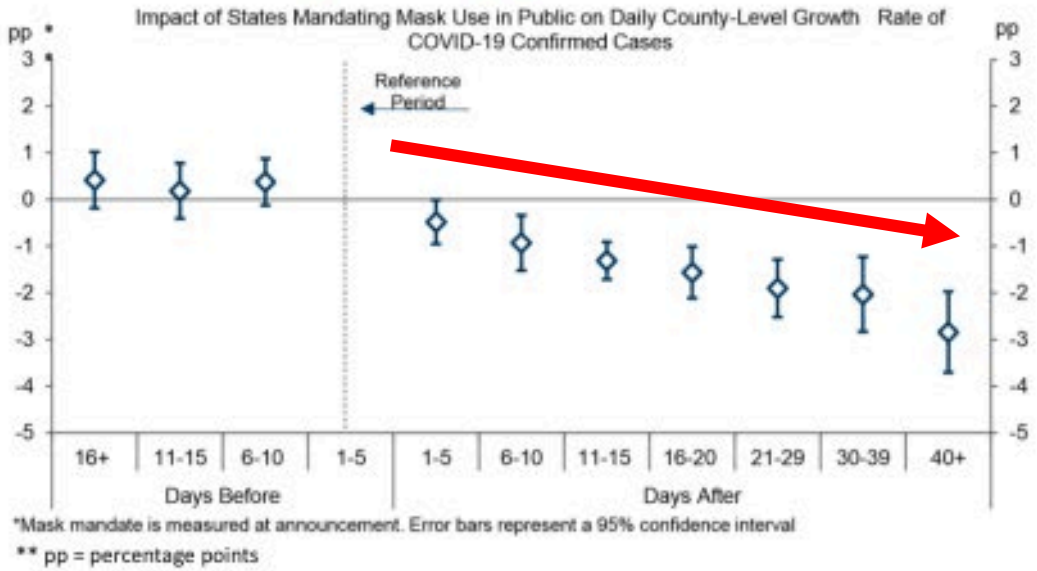
Adapted from Mitze et al. 2020, Institute of Labor Economics Report; DP No. 13319, http://ftp.iza.org/dp13319.pdf.

Valid as of November 16, 2020

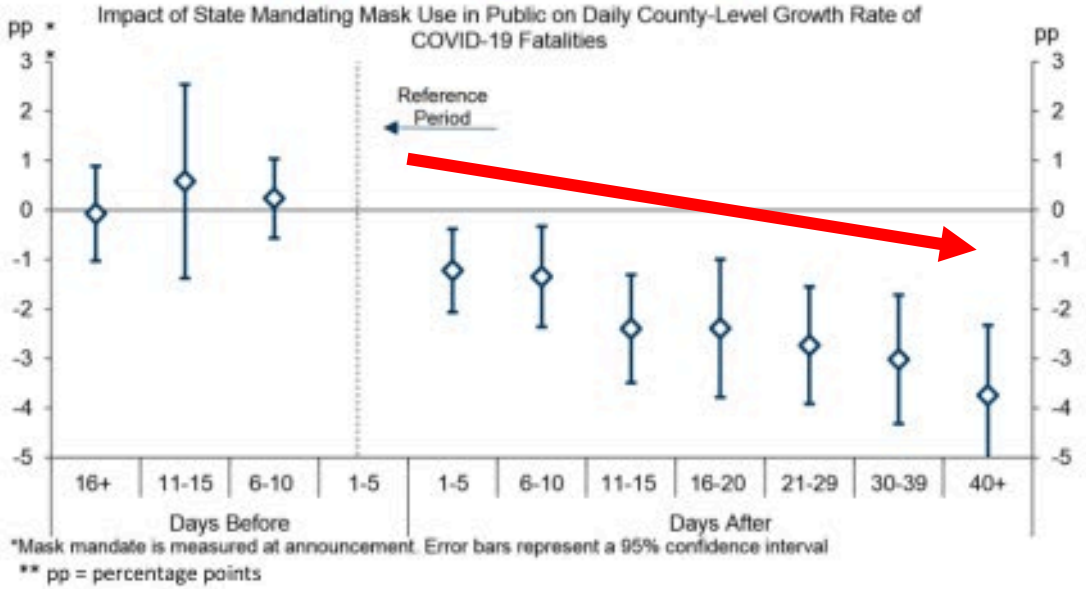
Mandatory Masking **DECREASES** Covid-19 Daily Case Rates, Fatalities, and Averts Lockdowns

With a 15% INCREASE in masking, GDP savings of $1 Trillion (5% GDP)

Daily Average *Case Rate*



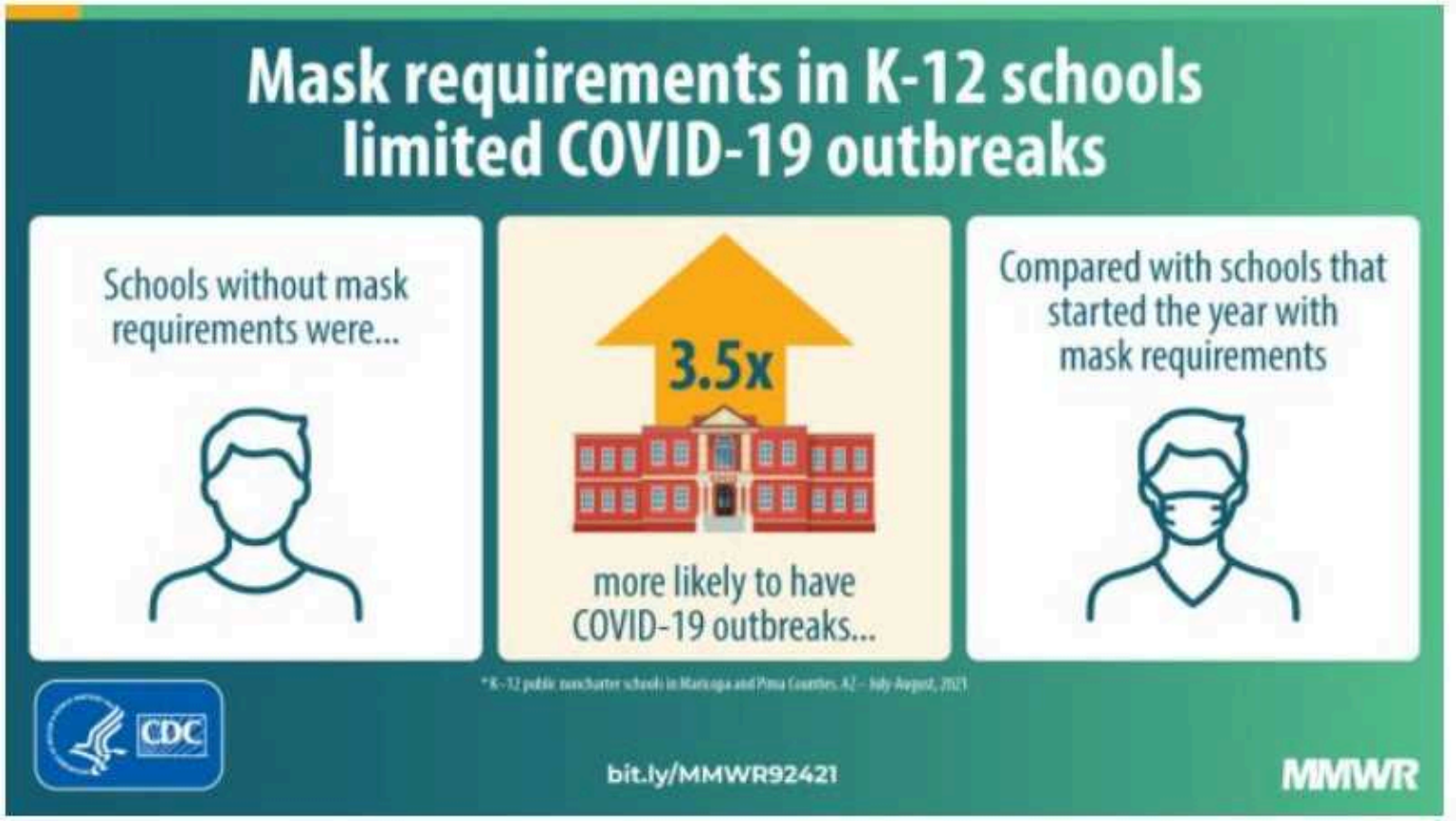
Daily Average *Fatality Rate*



Hatzius et al. 2020, Goldman Sachs Research report, https://www.goldmansachs.com/insights/pages/face-masks-and-gdp.html.

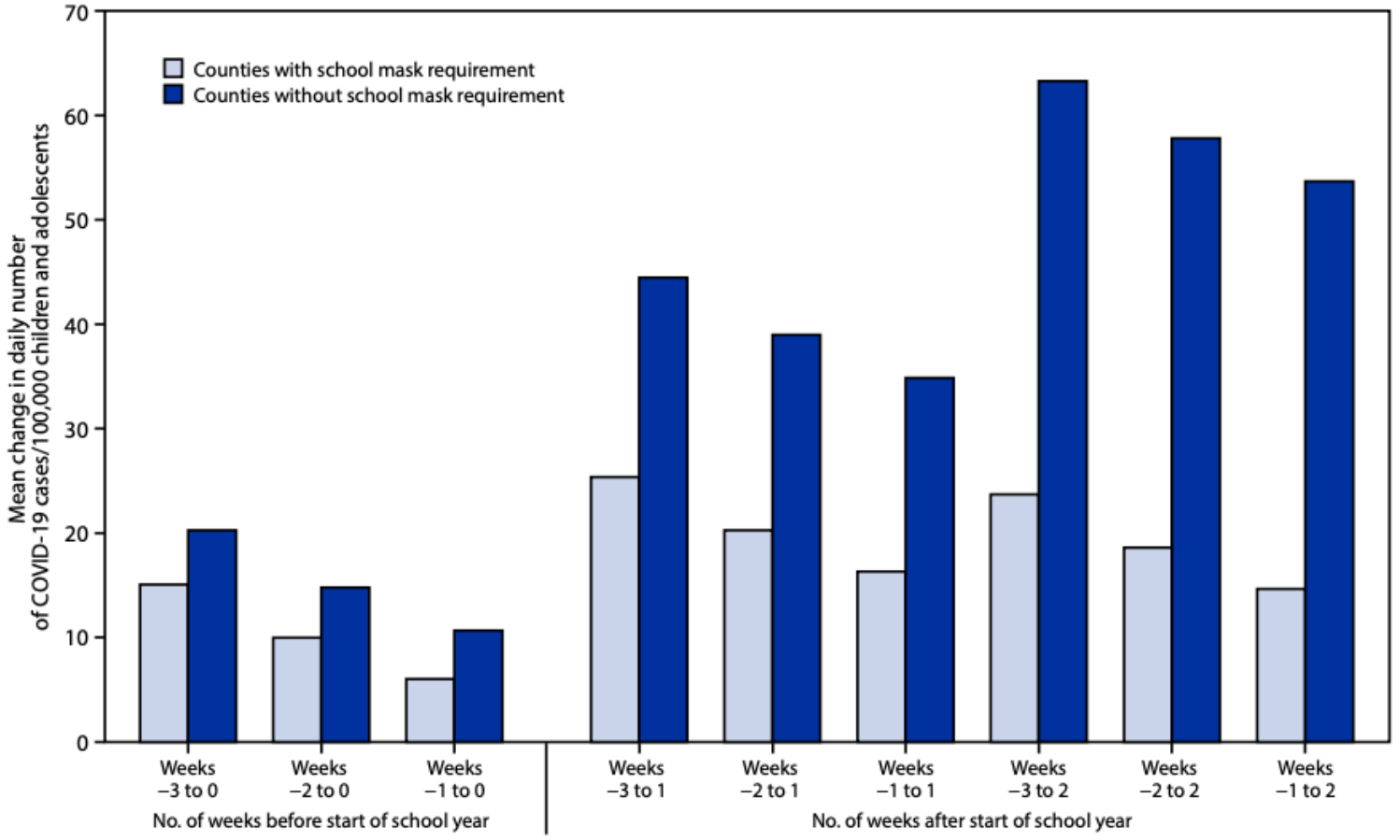
Valid as of November 16, 2020

CDC Recommends Universal Indoor Masking in K-12 Schools



Jehn, M. et al. 2021. Association Between K–12 School Mask Policies and School-Associated COVID-19 Outbreaks — Maricopa and Pima Counties, Arizona, July–August 2021. Centers for Disease Control and Prevention: Morbidity and Mortality Weekly Report.

FIGURE. Mean county-level change in daily number of COVID-19 cases per 100,000 children and adolescents aged <18 years in counties (N = 520) with and without school mask requirements* before and after the start of the 2021–22 school year — United States, July 1–September 4, 2021



* Among 520 counties, 198 (38%) had a school mask requirement and 322 (62%) did not have a school mask requirement.

CDC Study of 520 counties found that Covid-19 case rates during the 2021-2022 school year were smaller in counties with mask requirements than in those without mask requirements.

Budzyn, S. et al. 2021. Pediatric COVID-19 Cases in Counties With and Without School Mask Requirements — United States, July 1–September 4, 2021. Centers for Disease Control and Prevention: Morbidity and Mortality Weekly Report.

Additional Reports and Studies

Report on Face Masks for the General Public (Royal Society DELVE Initiative)

- This study portrays evidence supporting the potential effectiveness of masks and how this comes from analysis of: 1. the incidence of asymptomatic and pre-symptomatic transmission; 2. the role of respiratory droplets in transmission, which can travel as far as 1-2 meters; and 3. studies of the use of homemade and surgical masks to reduce droplet spread. This analysis suggests that the use of masks could reduce onward transmission by asymptomatic and pre-symptomatic wearers if used in situations where physical distancing is not possible or predictable and if wearing masks appropriately and effectively. If face masks are correctly used, they can contribute to reducing viral transmission.

Effectiveness of Face Masks in Preventing Airborne Transmission of SARS-CoV-2 (American Society for Microbiology)

- This study describes how their simulation experiments showed that cotton masks, surgical masks, and N95 masks had a protective effect with respect to the transmission of infective droplets/aerosols and that the protective efficiency was higher when masks were worn by the virus spreader as well as makes being worn effectively.

Efficacy of face masks, neck gaiters and face shields for reducing the expulsion of simulated cough-generated aerosols (Aerosol Science and Technology)

- This report shares how studies using patients with respiratory infections have shown that wearing medical face masks can reduce the dispersion of potentially infectious aerosols from patients. Evidence is drawn from two studies in which face masks were required for visitors and healthcare workers interacting with patients in bone marrow transplant centers found a reduction in respiratory viral infections among patients. Studies of cloth face masks have suggested that they also can be effective at reducing the release of respiratory aerosols into the environment.

Compiled By: Princilla Minkah, UMass Medical School

Additional Reports and Studies

Association Between Universal Masking in a Health Care System and SARS-CoV-2 Positivity Among Health Care Workers (Journal of American Medical Association)

- Mass General Brigham (MGB) is the largest health care system in Massachusetts, with 12 hospitals and more than 75 000 employees. In March 2020, MGB implemented a multipronged infection reduction strategy involving systematic testing of symptomatic HCWs and universal masking of all HCWs and patients with surgical masks. This study assessed the association of hospital masking policies with the SARS-CoV-2 infection rate among HCWs. Universal masking at MGB was associated with a significantly lower rate of SARS-CoV-2 positivity among HCWs.

Reduction of secondary transmission of SARS-CoV-2 in households by face mask use, disinfection and social distancing: a cohort study in Beijing, China (BMJ Global Health)

- Transmission of COVID-19 within families and close contacts accounts for the majority of epidemic growth. The secondary attack rate in families was 23.0%. Face mask use by the primary case and family contacts before the primary case developed symptoms was 79% effective in reducing transmission.

Universal Masking in the Covid-19 Era (New England Journal of Medicine)

- It is apparent that many people with SARS-CoV-2 infection are asymptomatic or pre-symptomatic yet highly contagious and that these people account for a substantial fraction of all transmissions. Universal masking helps to prevent such people from spreading virus-laden secretions, whether they recognize that they are infected or not. A growing body of research shows that the risk of SARS-CoV-2 transmission is strongly correlated with the duration and intensity of contact: the risk of transmission among household members can be as high as 40%, whereas the risk of transmission from less intense and less sustained encounters is below 5%. This finding is also borne out by recent research associating mask wearing with less transmission of SARS-CoV-2, particularly in closed settings. We therefore strongly support the calls of public health agencies for all people to wear masks when circumstances compel them to be within 6 ft of others for sustained periods.

Compiled By: Princilla Minkah, UMass Medical School

Additional Reports and Studies

Face Masks During the COVID-19 Pandemic: A Simple Protection Tool With Many Meanings (Front Public Health)

- This study involved 29 experts of an interdisciplinary research network on health and society to provide their testimonies on the use of face masks in 20 European and 2 Asian countries. These experts reflected on regulations as well as the personal and social aspects of face mask wearing. The study further analyzed their testimonies, and the analysis framed the four dimensions of the societal and personal practices of wearing (or not wearing) face masks: individual perceptions of infection risk, personal interpretations of responsibility and solidarity, cultural traditions and religious imprinting, and the need of expressing self-identity. Improving behavioral changes and attitudes are essential for designing more effective health communications about COVID-19.

Airborne transmission of COVID-19 and the role of face mask to prevent it: a systematic review and meta-analysis (European Journal of Medicine Research)

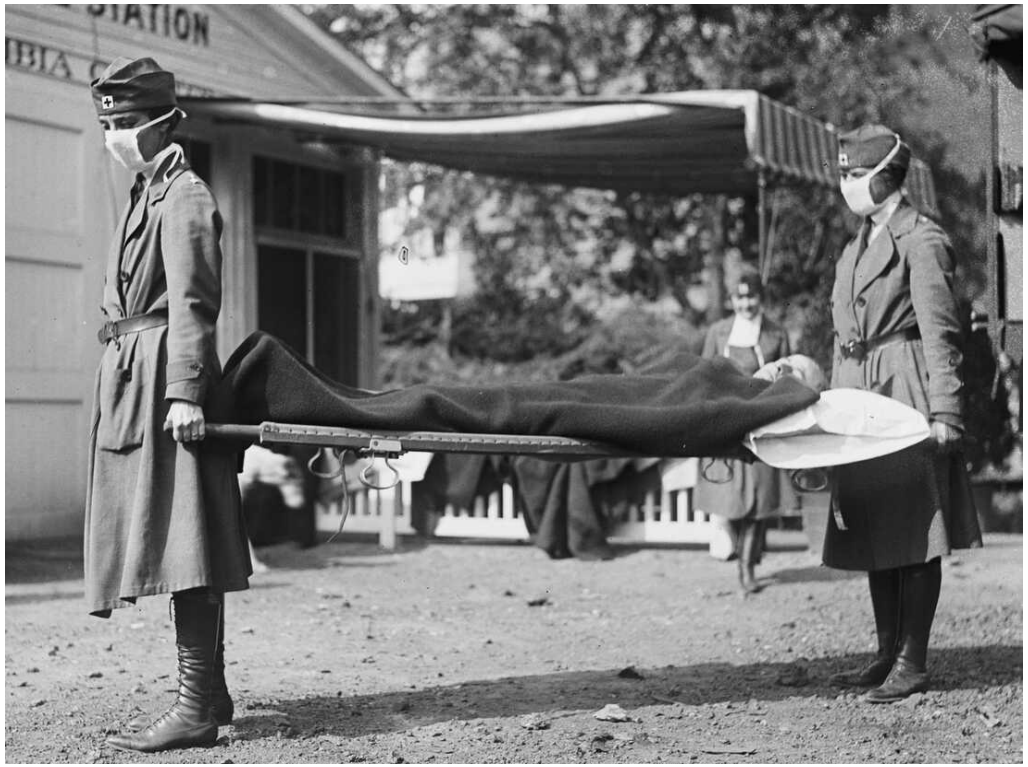
- After eligibility assessment, four articles with a total of 7688 participants were included in this meta-analysis. The result of this meta-analysis has shown significant reduction in infection with face mask use. In conclusion, this meta-analysis suggests that there is association between face mask use and reduction of COVID-19.

Face masks vs. COVID-19: a systematic review (Investigacion y Educacion en Enfermeria)

- The aim of the systematic review was to assess the effectiveness of face masks against the novel coronavirus. A literature search was performed using different databases until April 30, 2020. Five studies were included in the systematic review. A study stated that no difference between surgical and cotton masks. Also, two studies have emphasized the use of surgical masks or N95 respirators by medical staff, and two other studies emphasized the use of any type of face mask by general public.

Compiled By: Princilla Minkah and German Chiriboga, UMass Medical School

COVID-19 Has Now Killed About As Many Americans As The 1918-19 Flu



675,000 estimated deaths in 1918

684,357 as of 9/24/21

Source:
Centers for Disease Control and Prevention, National Center for Immunization and Respiratory Diseases (NCIRD). 2018. “History of 1918 Flu Pandemic.” https://www.cdc.gov/flu/pandemic-resources/1918-commemoration/1918-pandemic-history.htm
Elfein, J. 2021. “Death rates from coronavirus (COVID-19) in the United States as of September 24, 2021, by state.” Statista. https://www.statista.com/statistics/1109011/coronavirus-covid19-death-rates-us-by-state/
Associated Press. “COVID-19 Has Now Killed About As Many Americans As The 1918-19 Flu.” NPR. https://www.npr.org/sections/coronavirus-live-updates/2021/09/20/1039071274/covid-19-deaths-1918-19-flu-pandemic

WEAR A MASK

AND SAVE YOUR LIFE!

The Emergency That Now Confronts Our City
Is Beyond the Facilities of the Health Department

The RED CROSS

has come to the assistance of the Board of Health. Doctors and nurses can not be obtained to take care of the afflicted. You must wear a mask, not only to protect yourself but your children and your neighbor from influenza, pneumonia and death

"FLU" MASKS CAN EASILY BE MADE AT HOME

The Oakland Chapter of the Red Cross has issued the following instructions for the home construction of influenza masks:

1—Take a piece of gauze a yard square.

2—Cut this into strips 9 inches wide.

3—Fold each strip into halves, then into thirds, making six thicknesses of gauze.

4—Turn in raw edges and stitch all four sides to hold firm. Mask now measures seven inches by six.

5—Put three pleats in seven-inch ends, lowest pleat deeper than other two to allow room for nose.

6—Cut tape 12 inches long to each in the two lower corners. Attach a tape 12 inches long to each of the two upper corners.

7—Distinguish outside by a black thread.

A GAUZE MASK IS 99% *PROOF* AGAINST INFLUENZA

Doctors wear them. Those who do not wear them get sick. The man or woman or child who will not wear a mask now is a dangerous slacker.

DIRECTIONS FOR USING "FLU" MASK

Mask should be worn with the same side out.

If mask is used for preventive purposes only, be sure to boil it every night for ten minutes in clear water.

If mask is used in sick room caring for influenza patient, you should have two at least, changing every two or three hours, and boiling for ten minutes in clear water.

In taking care of the patient, the nurse should wear a coverall apron, and take it off before leaving the room. On entering the room the apron should be put on again.

OAKLAND CHAPTER AMERICAN RED CROSS

WEAR MASKS

GOING TO WORK
AT WORK
GOING HOME
AT HOME

This statement was authorized at a meeting of the undersigned, who are convinced that it is the only way to stamp out the epidemic. You must do your part

Alameda County Relief Committee

County of Alameda
City of Oakland
Board of Health of Oakland
Oakland Chapter American Red Cross
Oakland Clearing House Association
Oakland Chamber of Commerce
Associated Charities
Retail Dry Goods Association

ANTI-MASK MEETING

TONIGHT (Saturday) JAN. 25

DREAMLAND RINK

To Protest Against the Unhealthy Mask Ordinance

Extracts will be read from State Board of Health Bulletin showing compulsory mask wearing to be a failure.

Eugene E. Schmitz and other interesting speakers.

Admission Free.

Anti-Mask League Mass Meeting Ends In Battle Royal

Session Comes to Sudden Termination After Row Over Chair

Dear Board of Health Members,

Please see the attached report, which I have emailed to the Superintendent, and School Committee Members of the Worcester Public Schools. Below, please find the letter I sent to the Committee along with the letter.

September 19, 2021

SENT: Via Email

Dear Ms. Haber,

As a government official, your decisions affect the lives of others. You may, however, be mistaken in believing that as a government official you are afforded qualified immunity - de facto - for the decisions you make.

This is not true.

The courts have ruled School Boards cannot avail of qualified immunity if you are aware of harm - or even potential harm – that may result from your decisions.

When it comes to masks, attached is an Abstract that provides a summary of a full research paper Masks and Oral Health: A Molecular Systems Biology Analysis. The research was conducted by Dr. Shiva Ayyadurai, MIT PhD, who is one of the world's leading experts on the immune system. This Abstract summarizes the ineffectiveness of masks, and more importantly the harmful effects of mask-wearing on one's oral health, particularly our children, given the mouth is the gateway to systemic health across the entire body.

You have now been notified and given the scientific evidence. You cannot therefore avail yourself of

qualified immunity if my child or another's child is harmed.

This means as an individual, you will be held personally liable - be sued -, if our children are harmed from masks. To be clear, you will have to get your own attorney to defend any claims brought against you, and your personal hard-earned assets are exposed in such litigation.

Therefore, take personal responsibility for your decisions. I request, at a minimum, you delay any decisions on mandating mask-wearing on our children before you do your own diligence, given the harm masks may cause our children.

Thank you for your attention.

Yours sincerely

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International Center for Integrative Systems

ABSTRACT

Masks and Oral Health

A Molecular Systems Biology Analysis

Full Research Paper Available at

https://vashiva.com/product/white-paper-on-masks-and-oral-health/

V.A. Shiva Ayyadurai and Prabhakar Deonikar

International Center for Integrative Systems

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Last Updated: August 27, 2021

Full research paper at: https://vashiva.com/product/white-paper-on-masks-and-oral-health/

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ABSTRACT

This document is an Abstract of the full research paper on *Masks and Oral Health: A Molecular Systems Biology Analysis*. The full paper is available for purchase at: https://vashiva.com/product/white-paper-on-masks-and-oral-health/. The key takeaways of the research therein are:

- Use of cloth and surgical masks is ineffective
- While N95 masks are effective, their prolonged use creates harm
- Dentists have identified "mask mouth" and increased incidence of periodontal issues with mask use
- Systems biology analysis reveals a molecular mechanistic basis on how mask usage may affect the mouth microbiome leading to periodontal disease
- Oral health is essential to overall systemic health
- Oral health affects multiple systems: cardiovascular, nervous, metabolic and immune, to name a few
- Children's oral microbiome is critical to not only their future oral health but also their systemic health
- The establishment of oral microbiome in children is a predictor of their future oral and systemic health and diseases such as early childhood caries, celiac disease, autism, Henoch-schönlein purpura disease, pediatric appendicitis, pediatric inflammatory bowel disease, and pediatric obstructive sleep apnea syndrome

Introduction

Due to the pandemic caused by SARS-CoV-2, the Center for Disease Control (CDC), along with Local and State governments, has been issuing guidelines on wearing face coverings such as cloth masks, cloth face coverings, and surgical masks. The available clinical data casts doubt on whether face masks prevent the viral transmission effectively. Dental professionals are raising concerns over the effect of masks on oral health and noticing the rising incidence of "mask mouth" and periodontal disease. In this research study, the efficacy of wearing masks to prevent communicable respiratory diseases such as COVID-19, and the effect of prolonged mask usage on oral and systemic health was reviewed.

The history of mask usage in a clinical practice goes back to the 17th century during the plague in Europe. Masks gained mainstream acceptance in the medical community in late 1800s and by the public during the Spanish Flu of 1917. Even then, as it is now, mask usage was controversial. The current mask guidelines recommend either cloth masks, cloth face covering, surgical masks, or N95 masks. Clinical studies have shown that cloth masks and surgical masks are rendered less effective in blocking the transmission as the aerosolized viral particles are small enough to pass through the masks. Only N95 masks were shown to be effective in filtering the aerosolized particles; however, long term use of N95 masks has been linked with adverse outcomes for population groups with compromised respiratory and cardiovascular health, as well as pregnant women. During the ongoing COVID-19 pandemic, several medical practitioners, including dentists, have observed increase incidence of periodontal disease and have attributed it to prolonged mask use.

This Abstract summarizes the full research paper available at https://vashiva.com/product/white-paper-on-masks-and-oral-health/. The research therein presents the molecular systems biology of periodontal disease that emerges out of interactions in the oral cavity that occur between the soft tissue (gums, cartilage, etc.), hard tissue (bones) and the oral microbiome at the molecular level.

Oral health is a strong determinant of cardiovascular, neurological, metabolic, respiratory and immune health. A balanced oral microbiome is a key indicator of oral health. The research reviews the effect of masks on the oral health. The analysis of current scientific data reveals that prolonged mask usage promotes an imbalance in the oral microbiome, causing an oral disease, and subsequently several other systemic diseases.

Children are especially more prone to adverse effects of prolonged mask usage as their oral microbiome is still under development, making them more susceptible to future oral and systemic diseases due to prolonged mask usage. • The establishment of oral microbiome in children is a predictor of their future oral and systemic health and diseases such as early childhood caries, celiac disease, autism, Henoch-schönlein purpura disease, pediatric appendicitis, pediatric inflammatory bowel disease, and pediatric obstructive sleep apnea syndrome.

In summary, the clinical evidence for efficacy of face mask is inconclusive in preventing the spread of respiratory communicable disease. Long term use of masks may lead to imbalance in the oral microbiome, leading to oral and systemic diseases, especially in people with compromised health, pregnant women, and children.

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The bibliography below provides the critical research employed in development of the full research paper on *Masks and Oral Health*. The full paper is available for purchase at: https://vashiva.com/product/white-paper-on-masks-and-oral-health/

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Dear Laura and City Manager Augustus,

First, I want to thank Laura, and point out to the City Manager, for how pleasant my several phone calls with her were. She is professional, yet personable, and very detailed oriented, listening closely to the conversation. That is very hard to find these days and I applaud you Mr. Manager for having her in your office.

I will remind you that we knew each other a long time ago when you were first on the school Committee. I am a 70 year old retired lawyer (went to law school with Fran Ford and still best friends these many years later). I mention the rest of the details in this paragraph to hopefully "jog" your memory of when we met. At the time we got to know each other, I asked Brian O'Connell (great loss to the city and school committee) to establish a committee to look into developing a modified program, similar to then Boston Latin School, Bronx High School of Science and Stuyvesant High School (NYC, also), but with an emphasis on finding methods to assist children from Worcester, in poorer parts of the city, to be prepared by the time they reached high school to be eligible for the program. This goes back about 35 years. I know the timeline because my son, who will be 40 this year, was in kindergarten at Flagg Street school at the time. Lastly, Jim McDermott (then South High School state teacher of the year, in English) and I were both appointed to the sub-committee and on our own time sat down and wrote a 100 page report, after contacting many resources on how this might be done. Unfortunately, although Tom Friend very much was onboard, there was a vocal, small portion of the community that was able to get the idea shelved. As a side note, I sent it to Representative Chase and 6 months later Mass Academy was formed incorporating some of what we drafted. I only give you all this detail, so you may remember who I am. Thanks for your patience in reading this far before I get to the actual point of this note and our future telephone conversation.

I have been following everything related to Covid very closely, from all aspects, since the day we first found it in the United States. Probably the reason that first attracted me to this is I also have a Masters in Emergency Management and used to teach at the National Fire Academy. I mention this only so you know I do have some knowledge in dealing both with crisis and large scale "incidents". Respectfully, I have several suggestions relating to your recent executive order which I wholeheartedly support, based on my observations. In summary form, they are as follows:

1. I think the language as to where masks need to be worn should be more detailed and then also have a catch all that "grabs" anything you missed, (i.e.common areas and hallways of apartment complexes and condos; all stores, retail or service establishments of any size, etc. and catch all that any time you "walk out the door of any residence, yours or someone else's until you are outside the building, masks need to be worn and then put back on when you re-enter any indoor space whatsoever, except for the actual residence");

2. Since you only have the authority to do this in Worcester, and for whatever reason Governor Baker has not mandated it statewide, it may make sense to establish a "liaison" arrangement with all the adjacent "bedroom towns" (Holden, Auburn, Leicester, Grafton, etc.) to try to have them institute similar executive orders so all the people who come into the city daily don't bring a Covid surge from their place of residence;

3. Require any store over a certain size (grocery stores, Walmart,Target, etc.) to have an off duty/private duty police officer on premises (at least during their busiest times) to enforce the mask mandate; and

4. Establish fines on both the stores who do not enforce the same on repeated occasions, as well as trying to "fine" the individuals who are violating the order (hence, part of the reason for the police officer) some amount of money to make it clear that you really mean what it says in the Order.

I apologize for the length of this note, but wanted to see if I could get you to recall who I am and hopefully offer some worthwhile suggestions. As my wife of 47 years says, "Next time she will marry a plumber or dentist, not a lawyer".

I look forward to speaking with you next week and thank you for your courtesies in both reading this note and permitting me some time on the phone with you.

Best,

Phil

--
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